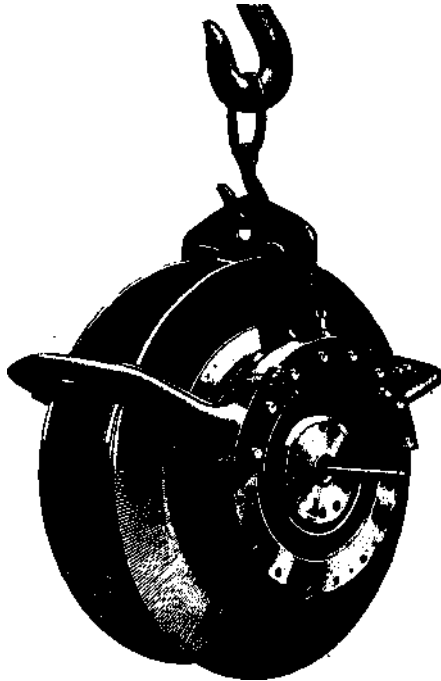


STEAM
TURBINES

an extension forming a hub. The hub is provided with a number of openings (2) through which the steam is admitted to the centre of the blade system. The bore of the hub is tapered, and the disc is connected to the alternator shaft through an extension shaft, to which it is secured by means of a number of round keys which are retained by a locking device screwed into the end of the shaft. From this it will be understood that each turbine rotor is overhung from the end of its alternator shaft. The extension shaft, which lies within the turbine casing



and is subject to heating due to the steam, is made hollow, so that the fluctuations in the temperature of the shaft and the hub will be practically simultaneous, and relative movement will be avoided.

The passages (3) through the disc are provided to allow for the admission of steam at an intermediate stage of the blade system

Fig. 41.—Special Lifting Stirrup for
5000-Kw.

when the turbine is operating under overload conditions.

Fig. 41 illustrates the two rotors of a 5000-Kw. Brush Ljungström turbine, designed to run at 3000 r.p.m., and shows the special lifting gear. The internal parts of the turbine are made accessible by removing the upper portion of the turbine casing. After the set-screws have been removed, the couplings between the generator and the turbine wheels are disengaged by a

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together with the turbine wheels, thus making the details of the turbine accessible for inspection. The two rotors are locked together by means of segments fitted into dovetailed grooves in the discs so as to prevent damage to the packing strips and the blade rings. After removal from the turbine casing a centre mandril is inserted, and the turbine wheels with their steam chests are clamped in an iron frame before removing the lifting arm.

Fig. 42 shows a half section through a 5000-Kw. turbine running at 3000 r.p.m. The left-hand portion of this section represents the bottom half of the design inverted.

The steam passes through a throttle valve and enters the turbine case through a pipe leading through the exhaust chamber. This pipe is divided within the casing into two, each branch leading to a separate stationary steam